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Appeal Brief	09/742,625

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Frank Chen; Gregory D. Confirmation No. 9358
Muselman; Travis W. Idol;
David H. Nowak
Serial No.: 09/742,625
Filed: December 20, 2000 Customer No.: 28863
Examiner: Elena Tsoy
Group Art Unit: 1792
Docket No.: 1079-008US02
Title: IN-PRESS PROCESS FOR COATING COMPOSITE SUBSTRATES

CERTIFICATE UNDER 37 CFR 1.8 I hereby certify that this correspondence is being transmitted via facsimile to the United States Patent and Trademark Office on 12-15-08.

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Commissioner for Patents
Alexandria, VA 22313-1450

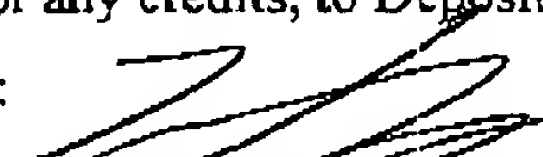
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Date: December 15, 2008

By: 
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APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450,
Alexandria, VA 22313

Sir:

This is an Appeal Brief responsive to the Final Office Action mailed on July 15, 2008, which finally rejected claims 37-39, 51-52, and 67-71. The Notice of Appeal was filed on October 15, 2008.

Please charge Deposit Account No. 50-1778 in the amount of \$540.00 for the Appeal Brief. Please charge any additional fees that may be required or credit any overpayment to Deposit Account No. 50-1778.

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**RECEIVED
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The real party in interest in this appeal is Valspar Sourcing, Inc., which is a wholly owned subsidiary of The Valspar Corporation, Minneapolis, Minnesota.

RELATED APPEALS AND INTERFERENCES

NONE

STATUS OF CLAIMS

Claims 37-39, 51-52, and 67-71 are on Appeal in this case. Claims 1-36, 40-50, and 53-66 have been canceled. Claims 37 and 71 are independent. Claims 38-39, 51-52 and 67-70 depend directly or indirectly from claim 37.

The pending claims 1-71 are set forth in the attached Claims Appendix.

Claims 37-39, 51-52, and 67-71 stand rejected under 35 U.S.C. § 103(a) as obvious over DE 2224732 (hereafter DE '732) in view of U.S. Patent No. 3,529,993 (hereafter Cummings), and further in view of WO 9622338 (hereafter Helmer).¹

Claims 38-39 and 71 stand rejected under 35 U.S.C. § 103(a) as obvious over DE '732 in view of Cummings, further in view of Helmer, and further in view of U.S. Patent No. 4,789,604 (hereafter van der Hoeven).²

STATUS OF AMENDMENTS

All amendments have been entered into the record, and no un-entered amendments remain under consideration.³

SUMMARY OF CLAIMED SUBJECT MATTER

In one embodiment covered by independent claim 37, the present invention is directed to a process for the manufacture of a polymer coated composite substrate (for example, composite

¹ Office Action dated July 15, 2008, page 2, paragraph 2; Office Action dated March 3, 2008, page 2, paragraph 2.

² Office Action dated July 15, 2008, page 2, paragraph 3; Office Action dated March 3, 2008, page 2, paragraph 3.

³ Office Action dated July 15, 2008, page 2.

doors or siding).⁴ The process includes providing a compressible mat, e.g., a lofty mat of fibers, and applying a formaldehyde-free, chemically crosslinkable primer coating composition onto the compressible mat.⁵ The chemically crosslinkable primer coating composition includes 95 to 99 % by weight, based on weight of dry materials in the composition, of an anionically stabilized aqueous emulsion of a copolymer with a T_g of -10 °C to 50 °C, the polymer including in polymerized form a polymerization mixture containing two or more ethylenically unsaturated monomers; 0.2 to 5% by weight of a polyimine compound having a number average molecular weight from 250 to 20,000; and 0.2 to 5% by weight of a volatile base.⁶ The chemically crosslinkable primer coating composition forms a chemically crosslinked polymer matrix when, or as, the composition is being applied to the compressible mat.⁷

A top coat composition is applied on the crosslinked polymer matrix to form a top coat layer, and the top coat composition includes a thermoplastic or a thermosetting polymer latex composition.⁸

The crosslinked polymer matrix, the top coat layer, and the compressible mat are compressed and heated to form the polymer coated composite substrate.⁹

In another otherwise identical embodiment covered by independent claim 71, a release coat composition is applied on the top coat composition.¹⁰

⁴ See, for example, application as filed, page 4, line 28-29.

⁵ *Id.*, at page 4, line 28 to page 5, line 6; page 3, lines 15-17; original claims 1 and 10.

⁶ *Id.*, at page 6, lines 15-25.

⁷ *Id.*, at page 5, lines 30-32.

⁸ *Id.*, at page 9, lines 23-28.

⁹ *Id.*, at page 9, lines 15-22 and 23-27; original claims 1 and 10.

¹⁰ *Id.*, at page 10, lines 12-15.

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GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Appellant submits the following grounds of rejection to be reviewed on Appeal:

- (1) The first ground of rejection to be reviewed is whether claims 37-39, 51-52, and 67-71 are obvious under 35 U.S.C. § 103(a) over DE '732 in view of Cummings, and further in view of Helmer.
- (2) The second ground of rejection to be reviewed is whether claims 38-39 and 71 are obvious under 35 U.S.C. § 103(a) over DE '732 in view of Cummings, further in view of Helmer, and further in view of van der Hoeven.

ARGUMENT

FIRST GROUND OF REJECTION UNDER APPEAL

Claims 37-39, 51-52, and 67-71 stand rejected under 35 U.S.C. § 103(a) as obvious over DE 2224732 (hereafter DE '732) in view of U.S. Patent No. 3,529,993 (hereafter Cummings), and further in view of WO 9622338 (hereafter Helmer).¹¹

This obviousness rejection is based on the following arguments by the Examiner:

- (1) It would be obvious to replace the aminoplast/acrylic resin in DE '732 with the composition described in Cummings (the reaction product of a polyamine and a polyanhydride) because the Cummings composition dries quickly and can be used as a wood primer.¹²
- (2) Cummings also states that his quick drying composition may be used as a traffic paint.¹³ Since the composition described in Helmer is also useful as a traffic paint, it would be obvious for a skilled artisan to replace the Cummings composition in the DE '732 process with the Helmer composition to achieve a hard, smear resistant coating and

¹¹ Office Action dated July 15, 2008, page 2, paragraph 2; Office Action dated March 3, 2008, page 2, paragraph 2.

¹² Office Action dated March 3, 2008, page 4.

¹³ *Id.*, at col. 2, lines 35-37.

provide the presently claimed process. One of ordinary skill in the art would have a "reasonable expectation of compatibility" between a top coat layer and the "amino resin" of Helmer, since Helmer and DE '732 both include acrylic resins.

(1) DE '732 and Cummings

A. The Cited References Teach or Suggest Neither Application of a Liquid Primer to a Compressible Mat nor Elimination of the Paper Carrier

With respect to ground of rejection (1), the DE '732 reference describes a process in which a paper carrier sheet is pre-impregnated with an aminoplast resin.¹⁴ The impregnated carrier sheet is then coated on one or both sides with a mixture of an aminoplast resin and an acrylic resin.¹⁵ The impregnated and coated sheet is then applied to a wooden plate and this construction is pressed under pressure and heat to form a high gloss synthetic resin surface.¹⁶ The resin flows during the molding process to form a closed synthetic resin surface, and the sheet is joined to the wood material.¹⁷

In contrast, the presently claimed method does not include a paper carrier for the primer. Instead, the primer is applied onto a compressible mat made of cellulosic materials such as wood fibers, particles, chips and flakes in a resin binder composition. The primer compositions of the present invention exhibit excellent hold out when applied to the compressible mat (i.e. the compositions do not sink too far into the surface of the compressible mat and remain on top), and the crosslinked matrix rapidly forms a surface suitable for receipt of subsequently applied top coats.

The cited references fail to teach or suggest elimination of the primer carrier sheet. The Examiner argues that the presently claimed compressible mat and the paper sheet in DE '732 are made from the same materials. However, the aminoplast/acrylic composition in DE '732 is not applied directly onto a compressible mat as presently claimed, but instead is applied on a paper surface that is already pre-impregnated with an aminoplast resin. Therefore, the Examiner has not articulated a reason that one of ordinary skill in the art, following a review of DE '732 (or

¹⁴ DE '732 translation, page 3, examples.

¹⁵ *Id.*, at pages 3-4.

¹⁶ *Id.*

¹⁷ *Id.*, at page 3.

any of the cited references) would eliminate the carrier sheet and select a primer composition for application to the compressible mat as presently claimed. In DE '732, the aminoplast/acrylic resin is applied on a surface pre-impregnated with an aminoplast resin, so one of ordinary skill in the art would have no reasonable expectation that application of that aminoplast/acrylic resin directly on the surface of the compressible mat would have provided the proper surface properties (e.g., hold out), once the article is removed from the press.

B. The Cited References Do Not Teach Application of a Topcoat over the Primer

The present claims require application of a topcoat composition over the primer composition before the construction is heated in a press to form a finished composite article. DE '732 (as well as the other cited references) fails to even suggest application of a topcoat over the primed sheet prior to heating and pressing. The Examiner has not articulated a reason that one of ordinary skill in the art, following DE '732, would apply a topcoat directly on the primer coating as presently claimed, let alone why one skilled in the art would expect that such a top-coating step would have a reasonable expectation of success.

C. A Skilled Artisan Would Not Replace the Composition of DE '732 with the Primer Composition in Cummings

Assuming, *arguendo*, that the paper carrier in DE '732 were eliminated, the cited references would not provide one of ordinary skill with an incentive to replace the aminoplast/acrylic resins in DE '732 with the compositions described in Cummings. The aminoplast resins described in DE '732, which are formed by reacting amines and aldehydes, differ significantly from the compositions in Cummings, which are reaction products of polyamines and polyanhydrides (e.g. a reaction product of a vegetable or a fish oil with malcic anhydride).¹⁸

The Examiner characterizes these compounds as "amino resins," apparently because they both use an amine reactant. However, the amines are an extremely large class of compounds, and the final reaction products in DE '732 and Cummings are completely different. Further, as

¹⁸ Cummings, col. 5, lines 1-15.

noted above, DE '732 describes a process in which a paper overlay pre-impregnated with an aminoplast resin is heated in a press under pressure,¹⁹ while Cummings describes a primer that cures rapidly at room temperature when directly applied to a wood surface without required heating.²⁰

The Examiner argues that these compounds each are made from an amine reactant and cure rapidly when applied to wood. However, as pointed out above, the aminoplast/acrylic compositions in DE '732 are not applied directly on wood, but to a surface of a paper sheet pre-impregnated with an aminoplast resin. In addition, even if the compounds in Cummings were compatible with this surface, applied thereon and cured rapidly, there is no reason, based on the teachings of the cited references, that the composition in Cummings would be suitable for use under the heating/pressure conditions in the press and be top-coarable as presently claimed.

Of all the compositions available in the art, Appellants respectfully submit that the Examiner has identified no rational reason that one of ordinary skill would substitute the compositions in Cummings for the primers in DE '732. Appellants respectfully submit the Examiner is improperly using the present disclosure, which discloses using a quick drying traffic paint as a primer for a compressible mat, as a template to identify and select the composition in Cummings.²¹ It is well settled that the claimed invention must be considered as a whole, and cannot be broken into its component parts and a reference found corresponding to each component – simply identifying all the elements in the prior art does not make a *prima facie* case of obviousness.²²

(2) DE '732, Cummings and Helmer

The Cited References Do Not Teach or Suggest the Presently Claimed Imino Compounds

The Examiner argues that it would be obvious for a skilled artisan to substitute the traffic paint in Helmer for the traffic paint in Cummings (which was previously substituted for the aminoplast resin of DE '732, and which was never applied to a compressible mat). Such

¹⁹ See DE '732 examples, where the impregnated paper web is heated at 160-170 °C at a pressure of 15-18 kP/cm² for 40-60 seconds.

²⁰ Cummings, col. 1, lines 38-39.

²¹ See, e.g. *In re Gorman*, 18 USPQ2d 1885 (Fed. Cir. 1991).

²² See, e.g. *Princeton Biochemicals, Inc. v. Beckman Coulter, Inc.*, 411 F.3d 1332 (Fed. Cir. 2005).

substitutions for substitutions are for different uses and fall far short of what is required to support a proper obviousness rejection.

The Examiner characterizes the compounds in DE '732 and Cummings as "amino resins," but for the reasons discussed above this characterization lacks technical merit. Appellants' independent claims specifically require a primer composition that includes a polyimine and a volatile base. An imine is generally understood by those of ordinary skill in the art to refer to a nitrogen-containing organic compound having a carbon-to-nitrogen double bond, while an amine is generally understood to refer to classes of compounds derived from ammonia (NH₃), which would not be expected to include the carbon-nitrogen double bond.²³ The presently claimed primer composition, which includes an imine, is not an "amino resin" as taught by DE '732, and includes no amine reactant as taught in the Cummings reference.

Since the compositions are very different, the Examiner has not articulated a reason that knowledge of the amine compositions in DE '732 and Cummings would provide the skilled artisan with any incentive to select the imine compounds in Helmer's traffic paint as a primer coating in a process for making a polymer coated article.²⁴ Appellants respectfully submit that under these circumstances the selection of the Helmer traffic paint composition from the multitude of possible coatings would not be obvious to one of ordinary skill in the art, and the present obviousness rejection could only be attributed to the exercise of impermissible hindsight bias.

The Examiner takes official notice, citing the 13th Edition of Hawley's Chemical Dictionary, that it is "common knowledge in the art" that certain polyethyleneimine compounds are "reactive toward cellulose."²⁵ Therefore, according to the Examiner, the imines in Helmer would be compatible with the acrylic resin in DE '732.²⁶

As noted above, the aminoplast/acrylic resins in DE '732 are not applied directly to a wood surface, but to a surface of a paper sheet pre-impregnated with an aminoplast resin.²⁷

²³ See, e.g., *Hawley's Condensed Chemical Dictionary*, 13th ed. (1997).

²⁴ The Examiner dismisses this point on the ground that Appellants are "attacking the Helmer reference individually." The argument instead challenges the Examiner's contention that it would be obvious to substitute the imine composition in Helmer for the amine derived resins in DE '732 and/or Cummings.

²⁵ Office Action dated March 3, 2008, page 4.

²⁶ Office Action dated March 3, 2008, page 4.

²⁷ Example 1 of DE '732 states that the paper is impregnated with 160 g/m² of resin, while Example 2 utilizes 270 g/m² of resin.

Therefore, Appellants respectfully submit that one of ordinary skill would not consider reactivity toward cellulose when considering a compound to replace the aminoplast/acrylic resins of DE '732.

In view of the above, the fact that certain imines are reactive toward cellulose does not provide a convincing rationale for utilizing the compositions in Helmer, which are taught to be applied under ambient conditions without a topcoat, in the process of DE '732, which utilizes high heat and pressure and does not utilize a topcoat. Moreover, even were one to make such a substitution, the resulting combination would still have the paper carrier. Again, the Examiner has identified no teachings in DE '732 that would suggest use of the traffic paint in Helmer as a primer in making wood composite materials.

(3) Proper Legal Standard

KSR International Co. v. Teleflex Inc. permits rejection of a claimed invention as being obvious when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions to pick from to solve the problem.²⁸ Here, however, the person of ordinary skill in the art is not presented with a finite number of solutions to pick from, but rather, an infinite number of potential choices.²⁹ A search of the PTO website reveals that over 75,000 issued patents are directed to coatings.³⁰ Of these over 75,000 patents (and the millions of coating compositions disclosed therein) the Examiner has not established that a person of ordinary skill in the art, without the benefit of having read the instant application, would have any reason to focus on or pick the traffic paint composition of the Helmer reference for use in the process described in DE '732.³¹ This is especially true given that the Helmer reference is directed to an end use (traffic paint) that is far removed from Appellants' field of endeavor (manufacture of composite substrates).

²⁸ 127 S. Ct. 1727, 1742 (2007).

²⁹ The imino composition of the Helmer reference is one of a nearly infinite number of potential choices for a person of ordinary skill in the art to pick from.

³⁰ A search of the word "coating" in the abstracts or title fields of the Issued Patents database yielded over 75,000 hits.

³¹ *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*, No. 2007-1223, slip op. at 9-11 (Fed. Cir. March 31, 2008).

KSR cautions that “[a] factfinder should be aware...of the distortion caused by hindsight bias and must be cautious against arguments reliant upon *ex post* reasoning.”³² KSR does not permit selective picking and choosing bits-and-pieces of technology out of the nearly infinite possible available references.³³ Nor can the combination come from the applicant’s invention itself.³⁴ The present obviousness rejection is based on hindsight following review of the present disclosure, and is improper.

(4) Conclusion

In view of the above, the cited DE ‘732, Cummings and Helmer references, whether considered alone or in combination, fail to teach or suggest at least two important features of the presently claimed process: (1) elimination of the paper carrier sheet and application of a primer composition directly to the surface of the compressible mat; and (2) application of a top coat composition over the primer composition prior to heating and compressing. The elimination of the carrier sheet and reduction of the number of processing, heating and drying steps provides a more cost-efficient process for manufacturing composite articles. For these reasons alone, Appellants respectfully submit that the present claims are not *prima facie* obvious under 35 U.S.C. § 103(a) over DE ‘732 in view of Cummings and Helmer. Reversal of this rejection is respectfully requested.

SECOND GROUND OF REJECTION UNDER APPEAL

Claims 38-39 and 71 stand rejected under 35 U.S.C. § 103(a) as obvious over DE ‘732 in view of Cummings, further in view of Helmer, and further in view of U.S. Patent No. 4,789,604 (hereafter van der Hoeven).

As noted above in the discussion of the First Ground of Rejection Under Appeal, the cited references fail to teach or suggest the presently claimed process steps. In addition, the amine derived compounds used in DE ‘732 and Cummings are very different from the imine compounds described in Helmer. One of ordinary skill in the art would have no incentive to

³² *KSR Int’l Co.*, 127 S. Ct. at 1742.

³³ *Id.*

³⁴ *Id.*, see, e.g. *In re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992).

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modify the process in DE '732 to replace the amino compounds with the compounds in Helmer, and such a modification would not have a reasonable expectation of success.

The Examiner has not established that the deficiencies in the DE '732, Cummings and Helmer references are remedied by the van der Hoeven reference, which is relied upon only to show that a suitable substrate to be coated may be a wood panel with paper attached to it.³⁵

For the reasons set forth above, the present obviousness rejection is based on hindsight following review of the present disclosure, and is improper. Appellants respectfully submit that the process presently claimed in claims 38-39 and 71 is not obvious under 35 U.S.C. § 103(a) over DE '732 in view of Cummings, Helmer and van der Hoeven. Reversal of the obviousness rejection is respectfully requested.

CONCLUSION OF ARGUMENT

In view of Appellant's arguments, the final rejections of Appellant's claims are improper and should be reversed. Reversal of all pending rejections and allowance of all pending claims is respectfully requested.

Date:

December 15, 2008

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³⁵ Office Action dated July 15, 2008, page 9.

**RECEIVED
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Claims 1-36 (Cancelled)

Claim 37 (Previously Presented): A process for the manufacture of polymer coated composite substrate, said process comprising:

providing a compressible mat, wherein the compressible mat comprises at least one of fibers and particles in a resin binder composition;

applying on a surface of the compressible mat a formaldehyde-free, chemically crosslinkable primer coating composition, comprising:

95 to 99 % by weight, based on weight of dry materials in the composition, of an anionically stabilized aqueous emulsion of a copolymer with a T_g of -10 °C to 50 °C, the polymer comprising in polymerized form a polymerization mixture containing two or more ethylenically unsaturated monomers; 0.2 to 5% by weight of a polyimine compound having a number average molecular weight from 250 to 20,000; and 0.2 to 5% by weight of a volatile base;

wherein the chemically crosslinkable composition forms a chemically crosslinked polymer matrix when, or as, the composition is being applied to the compressible mat;

applying on the crosslinked polymer matrix a top coat composition comprising a thermoplastic or a thermosetting polymer latex composition to form a top coat layer; and

compressing and heating the crosslinked polymer matrix, the top coat layer, and the compressible mat to form the polymer coated composite substrate.

Claim 38 (Original): The process of claim 37 wherein the compressible mat further comprises a sheet of paper which is glued to the surface of the mat.

Claim 39 (Previously presented): The process of claim 38 wherein the crosslinked polymer matrix is formed on the paper.

Claim 40-50 (Cancelled).

Claim 51 (Previously presented): The process of claim 37, wherein the chemically crosslinkable composition has a solids content from about 30% to about 80% by weight.

Claim 52 (Previously presented): The process of claim 37, wherein the chemically crosslinkable composition has a solids content from about 20% to about 70% by weight.

Claim 53-66 (Cancelled).

Claim 67 (Previously Presented): The process of claim 37, wherein the primer coating composition has a pH of about 8 to about 11.

Claim 68 (Previously Presented): The process of claim 37, wherein up to up to 5 wt% of the monomers in the polymerization mixture are α - β -ethylenically unsaturated aliphatic carboxylic acid monomers.

Claim 69 (Previously Presented): The process of claim 37, wherein the monomers comprise (meth)acrylate monomers.

Claim 70 (Previously Presented): The process of claim 37, wherein the volatile base comprises ammonium hydroxide.

Claim 71 (Previously Presented): A process for the manufacture of polymer coated composite substrate, said process comprising:

providing a compressible mat, wherein the compressible mat comprises at least one of fibers and particles in a resin binder composition;

applying on a surface of the compressible mat a formaldehyde-free, chemically crosslinkable primer coating composition, comprising:

95 to 99 % by weight, based on weight of dry materials in the composition, of an anionically stabilized aqueous emulsion of a copolymer with a T_g of -10°C to 50°C , the polymer comprising in polymerized form a polymerization mixture containing two or more ethylenically unsaturated monomers; 0.2 to 5% by weight of a polyimine compound having a number average molecular weight from 250 to 20,000; and 0.2 to 5% by weight of a volatile base;

wherein the chemically crosslinkable composition forms a chemically crosslinked polymer matrix when, or as, the composition is being applied to the compressible mat;

applying on the crosslinked polymer matrix a top coat composition comprising a thermoplastic or a thermosetting polymer latex composition to form a top coat layer;

compressing and heating the crosslinked polymer matrix, the top coat layer, and the compressible mat to form the polymer coated composite substrate; and

applying a release coat composition on the top coat composition.

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APPENDIX: EVIDENCE

None

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APPENDIX: RELATED PROCEEDINGS

None